

AMENDMENT UNDER 37 C.F.R. § 1.116

Application No.: 10/067,266

Atty Docket No.: Q63212

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

Claim 1. (currently amended): An electrical insulating vapor grown carbon fiber having a fiber diameter of 0.01 to 0.5 μm , a hollow part in the center of the fiber and a boron concentration formed from a mixture of a boron compound and a vapor grown carbon fiber, the mixture having a boron concentration of about 1 to about 30% by mass in terms of a boron element, wherein the surface thereof is partially or entirely coated with an electrical insulating material of ~~an inorganic compound or composition~~boron nitride and the amount of boron in a depth of 1 nm from the surface of the vapor grown carbon fiber is about 10% by mass or more, based on the entire mass of the vapor grown fiber having a depth of 1 nm from the surface, and wherein the electrical insulating vapor grown carbon fiber has a specific resistivity of $10^3 \Omega\cdot\text{cm}$ or more when compressed at a bulk density of 0.8 g/cm³.

Claim 2. (canceled).

Claim 3. (currently amended): The electrical insulating vapor grown carbon fiber as described in Claim 21, wherein the boron nitride is present in an amount of about 2% by mass or more based on the entire amount of vapor grown carbon fiber and has a Co value of 0.680 nm or less.

Claim 4. (canceled).

AMENDMENT UNDER 37 C.F.R. § 1.116

Application No.: 10/067,266

Atty Docket No.: Q63212

Claim 5. (currently amended): The electrical insulating vapor grown carbon fiber as described in Claim 1, wherein the fiber has ~~a specific resistivity of about $10^3 \Omega \cdot \text{cm}$ or more and~~ a heat conductivity of about $150 \text{ W m}^{-1} \text{K}^{-1}$ or more when compressed at a bulk density of 0.8 g/cm³.

Claim 6. (currently amended): A method for producing an electrical insulating vapor grown carbon fiber, comprising mixing a boron compound with a vapor grown carbon fiber having a fiber diameter of 0.01 to 0.5 μm to form a mixture and heat-treating the mixture at 2,000°C or more in the presence of a nitrogen compound to form a boron nitride electrical insulating material.

Claim 7. (currently amended): A method for producing an electrical insulating vapor grown carbon fiber coated with boron nitride, comprising mixing a boron compound with a vapor grown carbon fiber having a fiber diameter of 0.01 to 0.5 μm to form a mixture, compressing the mixture and heat-treating the compressed mixture at 2,000°C or more in the presence of a nitrogen compound to form a boron nitride electrical insulating material.

Claim 8. (original): The method for producing an electrical insulating vapor grown carbon fiber as described in Claim 6, wherein the nitrogen compound is nitrogen.

Claim 9. (original): The method for producing an electrical insulating vapor grown carbon fiber as described in Claim 6, wherein the boron compound is at least one member selected from the group consisting of elementary boron, boric acid, borate, boron oxide, B₄C and boron nitride.

AMENDMENT UNDER 37 C.F.R. § 1.116

Application No.: 10/067,266

Atty Docket No.: Q63212

Claim 10. (previously presented): The method for producing an electrical insulating vapor grown carbon fiber as described in Claim 6, wherein the mixture of the boron compound and the vapor grown carbon fiber has a boron concentration of about 1 to about 30% by mass in terms of the boron element, based on the entire mass of the vapor grown carbon fiber.

Claim 11. (currently amended): An electrical insulating composite material comprising a synthetic resin or synthetic rubber composition containing an electrical insulating vapor grown carbon fiber a fiber diameter of 0.01 to 0.5 μm , wherein the surface thereof is partially or entirely coated with an electrical insulating material of ~~an inorganic compound or composition~~~~boron nitride~~ and the amount of boron in a depth of 1 nm from the surface of the vapor grown carbon fiber is about 10% by mass or more, based on the entire mass of the vapor grown fiber having a depth of 1 nm from the surface, and wherein the electrical insulating vapor grown carbon fiber has a specific resistivity of $10^3 \Omega\cdot\text{cm}$ or more when compressed at a bulk density 0.8 g/cm³.

Claim 12. (canceled).

Claim 13. (currently amended): The electrical insulating composite material as described in Claim ~~12~~11, wherein the boron nitride is present in an amount of about 2% by mass or more based on an entire amount of vapor grown carbon fiber and has a Co value of 0.680 nm or less.

Claim 14. (currently amended): The electrical insulating composite material as described in Claim ~~12~~11, wherein the amount of boron in a depth of 1 nm from the surface of

AMENDMENT UNDER 37 C.F.R. § 1.116

Application No.: 10/067,266

Atty Docket No.: Q63212

vapor grown carbon fiber is about 10% by mass or more, based on the entire mass of the vapor grown carbon fiber.

Claim 15. (currently amended): The electrical insulating composite material as described in Claim 11, wherein the fiber has ~~a specific resistivity of about $10^3 \Omega\cdot\text{cm}$ or more and~~ a heat conductivity of about $150 \text{ Wm}^{-1}\text{K}^{-1}$ or more when compressed at a bulk density of 0.8 g/cm³.

Claim 16. (currently amended): A heat-releasing material comprising an electrical insulating vapor grown carbon fiber having a fiber diameter of 0.01 to 0.5 μm , wherein the surface thereof is partially or entirely coated with an electrical insulating material of ~~an inorganic compound or composition~~boron nitride and the amount of boron in a depth of 1 nm from the surface of the vapor grown carbon fiber is about 10% by mass or more, based on the entire mass of the vapor grown fiber having a depth of 1 nm from the surface, and wherein the electrical insulating vapor grown carbon fiber has a specific resistivity of $10^3 \Omega\cdot\text{cm}$ or more when compressed at a bulk density of 0.8 g/cm³.

Claim 17. (canceled).

Claim 18. (currently amended): The heat-releasing material as described in Claim 1716, wherein the boron nitride is present in an amount of about 2% by mass or more based on an entire amount of vapor grown carbon fiber and the fiber has a Co value of 0.680 nm or less.

Claim 19. (canceled)

AMENDMENT UNDER 37 C.F.R. § 1.116

Application No.: 10/067,266

Atty Docket No.: Q63212

Claim 20. (currently amended): The heat-releasing material as described in Claim 16, wherein the fiber has ~~a specific resistivity of about $10^3 \Omega \cdot \text{cm}$ or more and~~ a heat conductivity of about $150 \text{ Wm}^{-1}\text{K}^{-1}$ or more when compressed at a bulk density of 0.8 g/cm^3 .

Claim 21. (previously presented): The method for producing an electrical insulating vapor grown carbon fiber as described in claim 6, wherein the amount of boron in a depth of 1 nm from the surface of the vapor grown carbon fiber is about 10% by mass or more, based on the entire mass of the vapor grown fiber having a depth of 1 nm from the surface.